
Proposed Action Plan for Rejuvenation of River Malaprabha



Karnataka State Pollution Control Board

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January 2019

INDEX

Sl. No.	Topic	Page No.
1	Introduction to Malaprabha River	3-4
2	Sources of Pollution - Municipal Sewage generation and Treatment	4-7
3	Characteristics of River water quality	7
4	Action taken by the Board	8
5	Cost component involved in the Restoration of Polluted stretch	8-9
6	Status of Environmental Flow (E-Flow)	9
7	Short Term and Long Term Action and the Identified Authorities for initiating actions and the time limits for ensuring compliance	10-14

Proposed action plan for Rejuvenation of River Malaprabha

03. State : **Karnataka**

River Name: **Malaprabha**

River Stretch: **Khanapur to Ramdurg, Belgaum District.**

Priority : **III (BOD 10-20 mg/L)**

BOD Range : **7.3-17.3 mg/L**

1. Malaprabha River :

The Malaprabha River is a tributary of the Krishna River and flows through the state of Karnataka in India. Malaprabha River originates in the Western Ghat Mountains at an altitude of 792.4 meters at Kanakumbi village 16 Kms from Jamboti of Khanapur Taluka, Belagavi District, Karnataka. The River flows first in easterly and then in north-eastern directions and joins the Krishna river about 304 Kms from its origin.

The river starts with the discharge of urban local bodies' sewage from Khanapur, Mugata Khan Hubli, Saundatti, Munolli and Ramdurg Town Panchayt and Town Municipal Council respectively at downstream onwards. During non monsoon period the river is dried-up from downstream of Khanapur and it will be stagnated with the sewage during the non-monsoon period ie. from the month of March to May. Malaprabha River doesn't have the tributaries in its upstream and downstream up to its **80 Kms stretch from Khanapur to Ramdurg.**

Apart from the local urban bodies' small villages and the agricultural lands are situated all along the bank of river. Some small drains from the agricultural lands contributing the pollution load in river Malaprabha. There is a dam to Malaprabha River at Saundatti. Also CPCB has identified NWMP Station (1164) at catchment near Saundatti. The downstream of the dam there are Town Panchayat Munoli and Town Municipal Council Ramdurg is situated.

The water is also drawn for drinking purpose to all the local bodies situated all along the bank of river Malaprabha.



Figure 1. The Malprabha River Stretch

2. Industrial Pollution Control:

Table Showing the status of industries situated under River Malprabha Catchment

Sl No	Name of the Sugar/Distillery	Sugar/ Distillery	Effluent Generation in KLD	Sewage Generated in KLD	ETP Exist Yes/No	Mode of Dispose	Where to dispose
1.	Laila Sugars Ltd., Khanapur Tq., Belagavi, Karnataka	Sugar	220 KLD	20 KLD	Yes	Irrigation by open canal	Agricultural Land surrounding the Industry on farmers need bases
2.	Malprabha SSK Ni, M K Hubli, Bailhongal, Tq.,	Sugar/ Distillery	340 KLD	40 KLD	Yes	Irrigation by open canal	Agricultural Land surrounding the Industry on farmers need bases
3.	Renuka Sugars Ltd., Saundatti, Tq., Belagavi, Karnataka	Sugar/ Distillery	1106 KLD	94 KLD	Yes	Irrigation by open canal	Agricultural Land surrounding the Industry on farmers need bases and reuse in Distillery unit.
4.	EID Parry's Sugars Ltd., Ramdurg, Tq., Belagavi, Karnataka	Sugar	473 KLD	20 KLD	Yes	Irrigation by open canal	Agricultural Land surrounding the Industry on farmers need bases

2.1. Sugar Industries:

Sugar Industries should not be permitted to discharge treated/untreated effluents in any drain. Treated effluents should be completely utilized for irrigation purpose.

2.2. Distilleries:

- a. All the distilleries should be operating only with Zero Liquid Discharge (ZLD) system. In no case, spent wash be either disposed in drains or on land.
- b. Molasses generated should be properly stored and no spillage be allowed during handling.
- c. The composted spent wash after Reverse Osmosis (RO)/Multiple Effect Evaporator (MEE), the compost should meet the standards and after ensuring that the composted material does not leach color only such composted material may be used for land application.

There are no other industries like Pulp and Paper/ Straw board units, Textile units, Electroplating, Tanneries, Slaughter House, Frozen Meat Packing and Dairy units and Thermal power Plants.

2.3 Treatment of Sewage:

1. As per the estimation of Local bodies'/Townships namely, Khanapur (population-19309), MK Hubli (population-13387), Saundatti (population-41215), Munavalli (population-23152) and Ramdurg (population-40043) discharging their sewage and estimated sewage generation is about 2944.96 KLD and there are no sewage treatment plants and all the existing untreated sewage disposed through drains and pipelines.

The following Local bodies are discharging sewage in to river Malaprabha

Sl No	River	Town Panchayat/Town Municipal Council	% of UGD facility provided	Sewage Generation	STP Exist Yes/No	Mode of Dispose	Where to dispose
1.	Malaprabha River	Khanapur, Belagavi District,	Not provided	41.4 KLD	No	Pipeline/ Open Drain	River Malaprabha
2.	Do	Mugat Khan Hubli	Not provided	33.2 KLD	No	Open Drain	River Malaprabha

3.	Do	Saundatti	10 %	363.2 KLD	No	Open Drain	Malaprabha
4.	Do	Munolli	Not provided	55.16 KLD	No	Open Drain	River Malaprabha
5.	Do	Ramdurg	50 %	2452 KLD	No	Open Drain	River Malaprabha
	Total			2944.96 KLD			

2. Untreated sewage is being disposed in to river through drains immediately after downstream of Khanapur, MK Hubli, Saundatti, Munoli and Ramdurg Local bodies.
3. Prior to the planning of sewage treatment, the quality of sewage flowing in the drains joining to river Malaprabha has been analysed and the characteristics of sewage is given in table.

Sewage water Characteristics of Drains leading to River Malaprabha.

Sl No.	Drains/Parameters	Unit	Khanapur	MK Hubli	Saundatti	Munoli	Ramdurg
1	pH	—	7.58	7.01	7.09	7.43	7.48
2	BOD	mg/l	152	135	165	69	35
3	Suspended Solids	mg/l	80	60	1800	120	140

2.4. Municipal Sewage generation and Treatment

The Town wise sewage generation and treatment capacity Proposed for new STPs is provided in **Table-1**

Table-1: Status of Domestic Pollution in River - Malaprabha

Sl No.	Name of the local body	Type	Total Sewage generation in MLD	Total Capacity of Sewage treatment in MLD (Proposed)	Status of STP
1	Ramadurga	TMC	3.67	3.30(WSPS type) 1.00(MBBR type)	Not Provided
2	Khanapur	TP	2.08	2.00	Not Provided by DMA
3	Saundatti	TP	4.50	8.50 (SBR type) 0.50 (MBBR type)	Not Provided
4	Mugat Khan Hubli	TP	0.68	3.00	Not Provided by DMA
5	Munavalli	TP	2.00	8.00	Not Provided by DMA

3. Characteristics of River water quality:

The monitoring results of **Malaprabha** River at downstream of Khanapur Town for the year 2017 & 2018 are shown in **Table-2**. River water quality conforms to Class C-means Drinking Water Source with conventional treatment followed by disinfection.

3.1 Status of Water Quality

The details of parameter and specific concentration are provided in **Table-2**

Table-2 : Status of Water Quality of River - Malaprabha

Year	Locations	DO (mg/L)		BOD(mg/L)		Fecal Coliform (MPN/100ml)		Total Coliform (MPN/100ml)		Class
		Min	Max	Min	Max	Min	Max	Min	Max	
2017*	Downstream of Khanapur Town	7.2	8.7	0.4	1.74	500	1800	1600	3200	C
2018*		5.1	8.8	0.54	2.42	500	900	900	1600	C

Note: * Samples were not collected in summer due to no flow.

4 . Action taken by the Board:

- Inspection, collection and analysis the sewage sample generated by the Local Bodies regularly.
- Inspection, Collection, analysis of river Malaprabha water sample monthly and report to CPCB, New Delhi.
- Issued several show cause notices to the concerned Local Bodies for the treatment of sewage generated by the Local Bodies.
- KSPCB has filed a criminal case against the Town Panchayat, Khanapur and Town Municipal Council Ramdurg.
- The Hon'ble JMFC Ramdurg has passed orders with respect to the case filed by the Board and directed the TMC Ramdurg to construct STP. Accordingly the work is under progress.
- Town Municipal Council Ramdurg, the case has been filed and the TMC Ramdurg has completed its UGD work and establishing STP

5.0. Cost component involved in the Restoration of Polluted stretch

Cost component shall be an integral part of Detailed Project Report (DPR). Most of the cities and towns are deficient in treatment of its total sewage generated. In order to cater each identified town on the bank of polluted river and gaps observed between total sewage generated and treatment capacity needs to be considered for planning.

Cost component shall invariably depend towards construction, operation and maintenance of sewage treatment plant. On an average Rupees 2.5 Crore has been estimated as Capital Cost per MLD (for primary, secondary and Tertiary treatment) excluding Operation and maintenance cost for all the available conventional and recent technologies. In some cities and towns developed capacity of STP is fully or partially underutilized due to inadequate sewerage network and other implementation issues.

Total estimated cost of **Rs. 97.2483 Crores** should be made budgetary provision for Capital Cost including O&M for proposed new STPs (UGD, FSSM & STP) in the identified cities/ towns along the Malaprabha River. The estimated cost of **Rs.18.18 crores** is already made budgetary provision for Ramadurg local body by Government.

Table -3: Cost Component involved in the Rejuvenation of Polluted Stretch of Malaprabha

Sl. No.	Activity	Cost in Crores				
		Ramadurga	Khanpur	Saundatti	Mugat Khan Hubli	Munoli
1	Operation & maintenance (O&M) cost for existing STP per annum	Not Applicable				
2	Capital cost including O&M for proposed new STPs (UGD & STP)	4.6283 Crores (STP)	3.2 Crores (FSSM & STP)	90 Crores (UGD & STP)	4.8 Crores (FSS M & STP)	12.8 Crores (FSSM & STP)
	Total Rupees	115.4283 Crores				

6. Status of Environmental Flow (E-Flow) :

The details of Flow (discharge) is provided in **Table-4**

Table-4 : Status of E-Flow of River - Malaprabha

Year	Hydrological Observation Site	Flow (m ³ /s)	
		Min	Max
2015	Cholachgud	8.645	167.501

7.Action Plan- Short Term and Long Term Action and the Identified Authorities for initiating actions and the time limits for ensuring compliance

Short term and long term action plans and the implementing agencies responsible for execution of the action plans and the time limits are given in table as below :-

Sl. No.	Action plan for rejuvenation of river Malaprabha	Organisation/ Agency Responsible for Execution of the Action plan	Time Target
I.	Industrial Pollution Control		
	(a) Compliance of industries located in catchment area with respect to effluent discharge standards and its disposal as per consent conditions.	KSPCB	Complied
	(b) Inventorisation of the industries in the catchment area of River MALAPRABHA covering assessment on aspects relating to Status of Consents under Water & Air Acts and Authorisation, Effluent Generation, ETP capacities and final mode of effluent discharges	KSPCB	Complied
	(c) Actions against the Identified industries in operation without Consents under Water & Air Acts/Authorisation under the H&OW (M & TM) Rules, 2016 as amended	KSPCB	Not Applicable
	(d) Action against the industries not installed ETPs or ETPs exist but not operating or ETP outlet or treated effluent is not complying to the effluent discharge standards or norms	KSPCB	Complied
	(e) Action against the red category industries for installation of OCEMS and not transferring data to	KSPCB	Complied

	CPCB and KSPCB		
(f) Small scale/tiny and service providing units located in urban or semi-urban limits like Dairies, Auto Service Stations to have minimum provision of O & G traps	Local Authorities (Ramadurga, Khanpur, Saudatti, Mugat Khan Hubli, Munoli) /DMA		Within three months
(g) Prohibition of Burning of any kind of waste including agro-residues	State Govt. / District Administration and Local Authorities (Ramadurga, Khanpur, Saudatti, Mugat Khan Hubli, Munoli) and Agriculture Department		Within three months
(h) Directions to all the Industries which are observed to be not in operation or closed or temporarily closed to remain close till further orders from CPCB.	KSPCB		Within three months
(i) Estimation of industrial effluent generation and the existing CETP capacity and to arrive gap between the industrial effluent generation and the existing treatment capacity	KSPCB		Not Applicable
(j) Channelization of industrial effluents to CETPs for ensuring treatment to comply with the discharge standards.	KSPCB		Not Applicable
(k) Identification of suitable site within industrial areas, Execution and Commissioning of Adequate Capacity CETPs.	State Government , KIADB and District/Local Administration		Not Applicable

II. Sewage Treatment and Disposal Plan		
(a) District-wise estimation of total sewage generation, existing treatment capacities, quantum of disposal of sewage presently through drains and the gaps in sewage treatment capacity.	State Government, KUWS & DB, District Administration and local bodies (Ramadurga, Khanpur, Saudatti, Mugat Khan Hubli, Munoli) and DMA	Within six months
(b) To undertake measurement of flow of all the drains presently contributing pollution load in river malaprabha and to formulate detailed project report (DPR) for each drain and corresponding town and submission of DPR.	State Government, KUWS & DB, District Administration and local bodies (Ramadurga, Khanpur, Saudatti, Mugat Khan Hubli, Munoli) and DMA	Within six months
(c) Proper design, execution of STPs with full utilisation capacity	State Government, Karnataka, KUWS & DB District/Local Administration/DMA	Within 24 months
(d) Channelization including diversion of sewage generated from household/townships/villages to sewer lines/interception of all the drains presently carrying sewage and for ensuring proper treatment through the upcoming STPs	State Government, Karnataka, KUWS & DB District/Local Administration/DMA	Within 18 months
(e) Ensuring dairy/automobile service stations and Hotels / Restaurants particularly located on road-side should have a treatment system and levy of fine in case found violations	Local authorities/DMA	Within six months
III Ground water quality		
(a) Sealing of contaminated hand pumps and found to be unfit for drinking purpose by the public	State Government, Karnataka rural drinking water and Sanitation Department and Local authorities	Contaminated ground water is not noticed

(b) Supply of potable water to the affected communities in the identified critical blocks	State Government, Karnataka rural drinking water and Sanitation Department and Local authorities	Not Applicable
(c) Carrying assessment of ground water survey for quality and to identify over exploited and critical blocks in the district (Belagavi).	Karnataka State Ground Water Authority	Within three months
(d) To conduct periodic surprise inspection of the industry to rule out any forceful injection of industrial effluents into ground water resources	KSPCB/KGWA	Complied
(e) All the industry should be directed to obtain NOC from the CGWB and action against the Units in Operation without obtaining of NOC from CGWA	KSPCB,CGWB/CGWA and Karnataka State Ground Water Authority	Within six months (The proposed new industries will be directed to obtain NOC from CGWA)
(f) To ensure rain water harvesting by the industrial, commercial and other institutions and groundwater recharging with only clean water be encouraged by CGWB/CGWA	CGWA/ Karnataka Ground Water Authority	Complied

IV	Flood Plain Zone (FPZ)		
(a)Plantation in Flood Plain Zone (FPZ)	Karnataka State Forest Department	Within six months	
(b)Checking encroachments in the FPZ of river Malaprabha.	District and Local administration/DMA	Within six months	
(c)Prohibition of disposal of municipal plastic and bio- medical waste particularly in drains	Local administration/DMA	Within six months	
(d)Notification of Flood Plain Zone FPZ	State Government / Water Resources Department	Within six months	

V	Environmental Flow (E-Flow) and Irrigation Practices		
	(a) Measurement of flow in the river and records maintained	Central water Commission/ /Water Resources Department	Regularly (Daily/ monthly)
	(b) To conserve water and good irrigation practices to be adopted by the farmers by organising mass awareness programmes and through media in vernacular language	Karnataka State Irrigation and Agriculture Departments/ Water Resources Department.	Once in six months
